

# ABSTRACT

Isolated mammalian nucleic acid molecules encoding receptor protein tyrosine kinases expressed in primitive hematopoietic cells and not expressed in mature hematopoietic cells are provided. Also included are the receptors encoded by such nucleic acid molecules; the nucleic acid molecules encoding receptor protein tyrosine kinases having the sequences shown in Figure 1a (murine flk-2), Figure 1b (human flk-2) and Figure 2 (murine flk-1); the receptor protein tyrosine kinases having the amino acid sequences shown in Figure 1a, Figure 1b and Figure 2; ligands for the receptors; nucleic acid sequences that encode the ligands; and methods of stimulating the proliferation and/or differentiation of primitive mammalian hematopoietic stem cells comprising contacting the stem cells with a ligand that binds to a receptor protein tyrosine kinase expressed in primitive mammalian hematopoietic cells and not expressed in mature hematopoietic cells.

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